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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/549,574  | 09/19/2005  | Hiroyuki Kurimura    | 278485US0PCT        | 9527             |
| 22850 7590 09/29/2010<br>OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      |                     |                  |
| EXAMINER<br>MULLS, JEFFREY C  |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 1796  |             |                      |                     |                  |
| NOTIFICATION DATE   |             | DELIVERY MODE        |                     |                  |
| 09/29/2010  |             | ELECTRONIC           |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/549,574

**Applicant(s)**

KURIMURA ET AL.

**Examiner**

Jeffrey C. Mullis

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**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7-11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moczygamba (US 5,393,838).

Patentees disclose a polymodal block copolymer produced by use of 3 consecutive charges of styrene or styrene/butadiene mixture such as would produce 3 polymer blocks comprising vinyl aromatic monomer and containing some butadiene. Note Table VI in column 12 where a value of M1/M2 of 15 can be calculated for the vinyl aromatic blocks produced through step 5 based on the assumption that the species resulting from the step 1 charge of butyl lithium incorporates all 35 phm of the first charge and half (15 phm) of the step 2 and

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step 3 charges (given that half of the active alkyl lithium present during steps 2 and 3 is from the step 1 charge of alkyl lithium) and assuming top molecular weight of an aromatic block is proportional to the amount of monomer incorporated and inversely proportional to the amount of alkyl lithium from which the block is formed. While the material is coupled with VIKOFLEX 7170 which is an epoxidized soybean oil which has roughly 4 epoxy groups, coupling of lithium terminated styrenic block copolymers is notoriously inefficient and even a tiny amount of material in which only 2 chains are coupled read on the instant claims despite the limitation "linear". Furthermore soybean oil is a mixture of unsaturated materials and it appears likely that some diunsaturated material is present in soybean oil prior to epoxidation. With re to applicants polydispersities, polydispersities resulting from a single charge of alkyl lithium and a single charge of monomer are understood by those skilled in the art to be generally fairly narrow and applicants lower value of polydispersity of 3.35 is roughly double of what those skilled in the art would expect from a single charge of styrene and butyl lithium. However given the multiple additions of alkyl lithium and monomer, those skilled in the art would assume substantial broadening of molecular weight distribution for the above proposed charge sequence such than molecular weight distribution would lie within the metes and bounds of the claims.

With regard to applicants limitations in the last four lines of claim 1, the first 7 steps correspond to the first 5 steps of the non comparative example discussed above. However, the 7<sup>th</sup> step involves a new large charge of butyl lithium and

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small amount of styrene and would generate a small amount of homopolystyrene which is not pertinent to any limitation in the claims and the small amount of styrene in the seventh charge would not add substantially to any species existing prior to the start of the seventh step given the small amount of styrene in the seventh charge and given the large amount of butyl lithium which would compete to polymerize styrene with the lesser amounts of active chain ends existing prior to the start of the seventh step. It is assumed that the amount of monomer produced by a particular charge of butyl lithium in butyl lithium polymerization is proportional to the amount of monomer present and the fraction of butyl lithium due to that particular charge as compared to the total charges of butyl lithium present in the reaction mixture. Therefore, the weight of the polymer polymerized by the first charge of butyl lithium is  $35 + (10 + 5 + 5 + 5) \cdot 0.025 / (0.025 + 0.028) = 49.2$  parts while that polymerized by the second charge of butyl lithium is  $(10 + 5 + 5 + 5) \cdot (0.028) / (0.025 + 0.028) = 15.8$  weight parts. The second charge therefore forms about  $(100) \cdot 15.8 / (15.8 + 49.2) = 24\%$  of the total peak area and the first charge about 76%. Molecular weight of the polymer generated from a particular charge of monomer will be proportional to the fraction of alkyl lithium in that charge as compared to the whole reaction mixture and proportional to the amount of monomer present when the charge is present. Therefore the molecular weight of the charge 1 chain/the molecular weight of the charge 2 chain is  $49.2(0.028) / 15.8(0.025) = 3.49$  as in applicants M3/M4 range characteristic.

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When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al., 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Claims 1-5 and 7-11 are rejected on the grounds of Res judicata. Note in this regard that claim 1 as presently of record is substantially the same as that of claim 6 as present in applicants Appeal of 1-29-09 and that the Board of Patent Appeals and Interferences affirmed the above rejection over Moczygemba (US 5,393,838) above and furthermore claims 2-5 and 7-10 are substantially the same as claims 2-5 and 7-10 as they were in applicants appeal except for dependency on claim 1. With regard to claim 11, the portions of Moczygemba in the Examiner's Answer only disclosed use of the monomers recited by newly presented claim 11.

Applicant's arguments filed 9-7-10 have been fully considered but they are not persuasive. Applicants argue that the comparative compositions of Moczygemba are not disclosed to possess the characteristics of the last 5 lines of claim 1 (former claim 6) as presently drafted. However, as set out above in the second to last paragraph of the rejection over Moczygemba above, applicants characteristics reasonably appear to be inherent in Moczygemba's comparative

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examples. Furthermore applicants claim 1 as now of record is substantially the same as former claim 6 which was found unpatentable over Moczygemba by the Board of Patent Appeals and Interferences.

Any inquiry concerning this communication should be directed to Jeffrey C. Mullis at telephone number 571 272 1075.

Jeffrey C. Mullis  
Primary Examiner  
Art Unit 1796

JCM

9-23-10

/Jeffrey C. Mullis/

Primary Examiner, Art Unit 1796